

1. Introduction

1.1 The public health importance of self-harm

Self-harm, physical harm to an individual by self-injury or self-poisoning irrespective of motivation (NICE, 2011) is the most important risk factor for future suicide (Carroll, Metcalfe, & Gunnell, 2014; Owens, Horrocks, & House, 2002). Suicide is the known cause of death for approximately 800,000 people around the world each year, and by 2020 it is predicted to comprise 2% of the global burden of disease (WHO, 2012).

1.2 Predicting self-harm – the role of personality factors?

Self-harm is best understood as a complex interaction between individual personality factors (such as impulsivity and mood instability (MI)), various clinical and social factors (such as current mental and physical state, employment difficulties, financial stress, and previous abuse), and socio-demographic variables (such as age, sex, culture) (Hawton & van Heeringen, 2009). The recognised poor predictive value of risk scoring systems based on the existing clinical, social and demographic “risk” factors associated with self-harm (Franklin et al., 2017; Quinlivan et al., 2016; Saunders, Brand, Lascelles, & Hawton, 2014) implies that research into individual-based factors may be one way of improving our ability to predict future self-harm (de Cates et al., 2016).

1.3 Impulsivity, mood instability, and sexual abuse in childhood – understanding the links with self-harm risk

Reduced serotonin activity was one of the earliest and strongest biological links made to an increased risk of suicide (Asberg, Traskman, & Thoren, 1976; Roy, De Jong, & Linnoila, 1989). Poor control of impulsivity (rapid, unplanned reactions to internal or external stimuli without appropriately considering the negative consequences (Moeller, Barratt, Dougherty, Schmitz, & Swann, 2001)) emerged as a putative phenotype of this abnormal biology (van Praag et al., 1987). There is now a wealth of data assessing impulsivity and self-harm in individuals with various psychiatric diagnoses or none (Apter, Plutchik, & van Praag, 1993; Baca-Garcia et al., 2001; Mann, Waternaux, Haas, & Malone, 1999; Maser et al., 2002; Soloff, Lynch, Kelly, Malone, & Mann, 2000). However, the exact relationship between impulsivity and self-harm is unclear, including whether it relates to initiation of self-harm, repetition of self-harm, or both.

Mood instability (MI) has been proposed as interacting with high-risk symptomatology, such as self-harm (Peters, Balbuena, Baetz, Marwaha, & Bowen, 2015). The Diagnostic Statistical Manual of Mental Disorders 5 (DSM-5) refers to MI as a ‘marked reactivity of mood’, forming part of the diagnostic criteria of Borderline Personality Disorder (APA, 2015). However, it is also an important presence in other diagnoses, such as Bipolar Affective Disorder (Henry et al., 2001; Howes et al., 2011) and non-psychotic psychopathology in general (Marwaha, Parsons, Flanagan, & Broome, 2013). MI appears

to be associated with recent suicidal thoughts, independently of psychiatric diagnoses but not with suicidal acts (MacKinnon et al., 2005; Marwaha et al., 2013). However, due to its complex and interacting relationship with impulsivity, MI may yet have an important role in prediction of future self-harm. Impulsivity appears to be redundant in predicting future suicidal ideation if MI is taken into account (Peters, Balbuena, Marwaha, Baetz, & Bowen, 2015). In the same manner, it is possible that any link between impulsivity and future self-harm acts may be eliminated if mood instability is present. There is thus uncertainty about whether impulsivity has a role independent of mood instability in the context of self-harm and its repetition.

As a group, people with a history of childhood trauma, and especially childhood sexual abuse (CSA), are more likely to make suicide attempts and have higher scores on impulsivity and aggression scales (Brodsky et al., 2001). CSA may therefore be considered an environmental risk factor for both impulsivity and self-harm (Brodsky et al., 2001), and the relationship between these three factors requires further exploration.

1.4 Self-harm and impulsivity in the context of ethnic minority populations

There is much less investigation of self-harm in ethnic minorities compared to Caucasian populations in Western countries including the UK (Gholamrezaei, De Stefano, & Heath, 2017; Turnbull et al., 2015). From what we do know, repetition of

self-harm is thought to be less frequent in those of Black and South Asian ethnicity when compared to Caucasians, except perhaps in terms of younger females (Cooper et al., 2010). However, Blacks and South Asians who repeat self-harm do not appear to be markedly different from Caucasians who repeat self-harm (Cooper et al., 2013); those who present to hospital following self-harm are generally socially disadvantaged in comparison to the general population in England (Hawton, Harriss, Simkin, Bale, & Bond, 2001) and therefore any differences in health between ethnicities may be inextricably linked with socioeconomic status (Gholamrezaei et al., 2017; Turnbull et al., 2015). In the 72% of 28,512 patients attending A&E for self-harm in three UK hospitals and for whom ethnicity was known, 88% were White, 5% were South Asian, and 3% were Black. After data was adjusted for age, gender and socioeconomic deprivation, the risk of suicide in Black people (hazard ratio 0.43, 95% CI 0.19 – 0.97), as well as all-cause mortality in South Asian (hazard ratio 0.51, 95% CI 0.42 – 0.62) and Black people (HR 0.46, 95% CI 0.39 – 0.55), were all significantly lower when compared to White people (Turnbull et al., 2015).

Whether impulsivity is consistent across, or varies according to, ethnicity is not well understood. Recent evidence suggests that impulsivity questionnaires such as the UPPS-P are likely to be consistent across ethnicities (Stevens, Blanchard, Shi, & Littlefield, 2018). The role of genetics in potential impulsivity phenotypes within and between ethnicities has recently been examined in substance misuse (Ehlers et al., 2016), and

risk taking behaviour (Strawbridge et al., 2018). Strawbridge and colleagues in particular found that there were greater differences between sexes than between ethnicities in terms of the potential role of genetics on risk-taking behaviour. Using data from the Fragile Families and Child Wellbeing Study which followed city families from a child's birth to age 15 over 1998 to 2016, and where 495 families identified as White and 1436 as Black, Assari and colleagues looked at ethnic differences of youth impulsivity at age 15 and whether this varied according to family socioeconomic status (Assari, Caldwell, & Mincy, 2018). For the whole study population, independent of ethnicity, higher household income ($b = -0.01$, 95% CI = -0.01 to 0.00) and maternal education ($b = -0.24$, 95% CI = -0.44 to -0.04) at birth were associated with lower youth impulsivity. However, a significant interaction was found between ethnicity and household income at birth ($b = 0.01$, 95% CI = 0.00 to 0.02) in terms of future youth impulsivity; there was a stronger protective effect of privileged social circumstances against impulsivity at 15 for Whites versus Blacks. Therefore, from current evidence, impulsivity may be consistent genetically and in terms of measurement, but ethnic minorities may be less protected from it as a phenotype by advantaged social circumstances.

1.5 Lack of clarity in terms of importance of these factors and timing of future self-harm

Therefore, current evidence indicates that impulsivity may be an important individual-based factor in terms of future self-harm, and that it should be analysed in the context of mood instability considering their close relationship in terms of self-harm. A recent epidemiological study using a large United Kingdom (UK) dataset has examined the effect of baseline mood instability and impulsivity on future non-suicidal self-harm (NSSH) (Peters, Baetz, Marwaha, Balbuena, & Bowen, 2016). However, there has been no epidemiological study of the inception and repetition of non-suicidal self-harm (NSSH) and suicidal self-harm (SSH) in the context of mood instability and impulsivity. Moreover, the role of child sexual abuse in these relationships has not been examined in detail.

1.6 Aims of the study

We used data from a large United Kingdom (UK) household survey. Our primary aims were to determine in a longitudinal analysis whether impulsivity predicted (i) onset of suicidal self-harm and non-suicidal self-harm and (ii) repetition of suicidal self-harm and non-suicidal self-harm, after controlling for socio-demographic variables, depression, mood instability (MI) and general mental and physical health. We hypothesised that impulsivity and any self-harm would be associated, but that this association would be removed by the presence of mood instability. A secondary aim was to determine if

impulsivity has a role in the relationship between (i) CSA and suicidal self-harm, and (ii) CSA and non-suicidal self-harm, in a cross-sectional analysis.

2. Methods

2.1 Sample

Participants were respondents of the second Adult Psychiatric Morbidity Survey (APMS) conducted in the UK in 2000. The survey was designed to be representative of the British adult population. The 2000 survey was chosen as it also included an 18-month follow-up of a planned subset of participants. The sample constituted people aged 16 to 74 years living in private households in England, Wales and Scotland, randomly selected by a postcode sampling procedure. Data were weighted to account for survey design and response rates so that the results remained representative of the UK national household population. Full details of the survey and methods are given in the comprehensive APMS survey report (Singleton, Bumpstead, O'Brien, Lee, & Meltzer, 2001). Supplementary material tables 1 and 2 provide demographic details of respondents for certain groups (suicidal self-harm at T1 and T2, non-suicidal self-harm at T1 and T2, and impulsivity).

2.2 Measurements

Impulsivity was assessed using the question 'have you always done things impulsively? (Yes/No)', while mood instability (MI) was assessed using 'do you have a lot of sudden mood changes? (Yes/No)'. Both items formed part of the Structured Clinical Interview for DSM-IV (SCID). Experience of childhood sexual abuse (CSA) was reported by indicating on a card in the Stressful Life Events section of phase one interviews. This was defined as abuse in childhood (under the age of 16) involving sexual intercourse or related

physical molestation. The Clinical Interview Schedule-Revised (CIS-R) provided questions in terms of suicidal self-harm (SSH) ('have you ever attempted suicide (Yes/No)'), non-suicidal self-harm (NSSH) ('ever deliberately harmed yourself but not with the intention of killing yourself (Yes/No)'), and depression (CIS-R depression score). Physical health status was determined from 'Health in general' (1: excellent, 2: very good, 3: good, 4: fair, 5: or poor?), and general mental health was determined from the question 'in last year have you consulted your GP about a mental health complaint? (Yes/No)'. Sociodemographic variables constituted sex (1 male, 2 female), age in 10year bands, employment status (0 employed, 1 unemployed), marital status (0 married, 1 not married), ethnicity (0 others, 1 blacks).

2.3 Analyses

We used the Statistical Package for Social Sciences-20 (SPSS-20th edition for Windows) and STATA (version 14 for Windows) to perform statistical analyses. Descriptive statistics including frequencies, percentages, means and standard deviations were obtained to describe the sample.

We examined the construct validity of self-harm and impulsivity variables in relation to sociodemographic and significant life event variables using both the baseline and follow-up data (detailed in supplementary material tables 1 and 2). This demonstrated that the

self-harm and impulsivity variables used in this analysis were associated with factors previously shown to be linked to self-harm and impulsivity in a different UK cohort (Lereya et al., 2013; Mars, Heron, Crane, Hawton, Kidger, et al., 2014; Mars, Heron, Crane, Hawton, Lewis, et al., 2014) and other studies (Christiansen & Jensen, 2007; De Leo et al., 2001; Kreitman & Foster, 1991; Tejedor, Diaz, Castillon, & Pericay, 1999). In this way, we corroborated the validity of the APMS assessments of these constructs used in our analysis.

In order to test the role of impulsivity as a mediator between CSA and SH (divided into SSH and NSSH), we used the Karlson Holm Breen (KHB) command in STATA. This method of mediation analysis breaks down the total effect of a variable into direct and indirect effects (Marwaha, Broome, Bebbington, Kuipers, & Freeman, 2014), and has been used in previous analyses of data from the Adult Psychiatric Morbidity Survey (Catone et al., 2015; Moffa et al., 2017).

Four logistic regression analyses (two for each self-harm outcome) were performed in order to test the longitudinal association of impulsivity with the repetition and inception of SSH and NSSH over the 18-month interval. All analyses were first performed unadjusted and then controlled in ordered manner in four separate stages for socio-demographic variables, depression, MI, and general mental and physical health.

3. Results

3.1 Cross-sectional analyses

Responses from 8580 respondents were available for cross-sectional analysis of the baseline dataset. Of these 8580, 1193 (13.9%) and 3715 (43.3%) endorsed impulsivity and mood instability (MI) respectively, while 346 (4%) indicated personal experience with childhood sexual abuse (CSA). Suicidal self-harm (SSH) and non-suicidal self-harm (NSSH) were reported respectively by 430 (5%) and 200 (2.3%). The sex and age of respondents in various groups can be found in supplementary tables 1 and 2.

In table 1, we analysed the extent to which impulsivity mediated the associations of CSA with self-harm (SSH and NSSH). The indirect route via impulsivity appeared more important for SSH than for NSSH: impulsivity explained 11% of the relationship between SSH and CSA, but only 4% of the relationship between NSSH and CSA.

3.2 Longitudinal analyses

Responses were available from 2406 participants in the 18-month follow-up analyses. This was follow-up of a planned subset of the original cohort. Of these, 191 (7.9%, weighted) had experienced at least one episode of SSH at T1, and 22 at T2 (0.9%). 90

(3.7%) answered positively for NSSH at T1, and 25 (1.0%) at T2¹. For analysis purposes, 13 respondents had repetition of SSH at T2 (T1 + T2), and 3 had new inception of SSH at T2 (T2 only). 6 respondents endorsed SSH at T2, but equivalent data was missing at T1 (due to errors in the APMS dataset) and so they could not be included in analysis. Equally, 13 respondents repeated NSSH at T2 (T1 + T2), and 12 had new NSSH at T2 (T2 only).

The longitudinal logistic regression analyses demonstrated that impulsivity predicts new NSSH at 18-month follow-up in individuals who at baseline had not reported previous NSSH (OR 11.73, 2.27-60.60, $p < 0.005$) (table 3). This finding remained significant after controlling for socio-demographic variables, depression, MI, and general physical and mental health, although the odds ratio reduced (OR 6.42, 1.50-27.44, $p < 0.012$) (table 3). However, impulsivity did not significantly predict new inceptions of SSH, or repetition of either NSSH or SSH. The full list of odds ratios (unadjusted and after controlling for factors in an ordered regression) is detailed in tables 2 and 3.

¹ Results from a validating analysis of our SSH and NSSH variables confirming participant numbers and construct validity of the self-harm variables and the impulsivity variable are displayed in supplementary material.

4. Discussion

In this study, we assessed whether impulsivity may predict the inception and repetition of suicidal and non-suicidal self-harm, independently of mood instability (MI). We also examined whether impulsivity mediated the relationship between childhood sexual abuse (CSA) and self-harm.

Impulsivity did predict first onset but not necessarily repetition of self-harm independently of current and recent mood disturbances (specifically MI and depression), general mental and physical health, and background social and demographic factors. Our results resolve some of the uncertainty about impulsivity and prediction of self-harm, and begin to unpack the relationship between impulsivity and related factors such as MI in terms of self-harm. This has clinical relevance: awareness of the role of impulsivity may aid clinicians in managing future risk. Once self-harming behaviour has started, an “escalating disinhibition syndrome” of self-harm may develop in an individual (de Cates & Broome, 2016), such that protective factors such as self-censure are removed in terms of future episodes. However, although it may have an important role in development of the disinhibition syndrome, impulsivity may not be a significant factor in repetition of self-harm once this disinhibition syndrome is established, and at this point other factors may become more important. This complexity may explain some of the difficulties

experienced by all researchers in teasing out the exact role of impulsivity in its relationship to self-harm.

We also found that impulsivity meets criteria for mediating the relationship between CSA and self-harm. This is consistent with previous evidence where college students who reported child maltreatment also demonstrated higher levels of impulsivity and higher rates of self-harm behaviours during adulthood (Arens, Gaher, & Simons, 2012). Arens and colleagues suggested that individuals with histories of childhood abuse may be more likely to engage in self-harm in order to reduce intense negative affect (Arens et al., 2012). In the current study impulsivity was particularly important in mediating more severe suicidal behaviour, in which the intent appeared to be completed suicide. A possible explanation, linking our cross-sectional and longitudinal results, might be that impulsivity is more important in first onset of self-harm than repetition (before the “escalating disinhibition syndrome” of self-harm develops), and that, once impulsivity has initiated the tendency for established self-harming behaviour, the threshold for repetition of this action is lowered. While these results provide suggestions about the importance of different individual factors in the mechanism and timing of self-harm as a pathological process, further clarification is required.

Our findings indicate that (perhaps outside of the context of CSA) impulsivity may be more relevant for initiation of NSSH as opposed to SSH. This could be considered particularly important considering the paucity of previous research examining both NSSH and SSH in this dataset in the context of impulsivity and mood instability (MI).

We encourage all researchers to include NSSH and SSH responses in using large datasets to analyse self-harm.

Our results could be considered to be consistent with psychological research in the US using this distinction. NSSH, suicidal behaviour, impulsivity and substance misuse were examined in a study of 93 adult inpatients. Anestis and colleagues (Anestis, Tull, Lavender, & Gratz, 2014) identified that NSSI appeared to explain the link between impulsivity and suicidal behaviour; they considered that NSSH may be a form of painful and / or provocative experience which acts as a mediator between impulsivity and suicidal behaviour according to the interpersonal-psychological theory of suicidal behaviour (Van Orden et al., 2010). Equally, there may be important differences in other longer-term outcomes between suicidal and non-suicidal self-harm: (i) both increase the risk of substance misuse and mental illness, but the odds are greater for SSH compared to NSSH, and (ii) SSH alone increases the future risk of poor long-term educational and occupational outcomes (Mars, Heron, Crane, Hawton, Lewis, et al., 2014). This appears to be the case even if the individual stops self-harming behaviour. Therefore, separating

self-harm according to intent appears to have some validity and purpose, although that purpose may not include determining the risk of future self-harm and suicide.

We note that our findings differ from a previous cohort analysis (of ALSPAC data) undertaken by Mars *et al.* (Mars, Heron, Crane, Hawton, Kidger, et al., 2014). In this study, cognitive impulsivity at age 10 using the Stop-Signal task was not predictive of future SSH or NSSH at 16. However, there may be several explanations for the discrepancy between the two findings: (i) ALSPAC used a cognitive measure of impulsivity whereas APMS used self-assessment, and it is not clear whether one or the other is more valid as a measure of impulsivity, or whether they measure different constructs, or different parts of the same construct (Broos et al., 2012; Gorlyn, 2005); (ii) the ALSPAC cohort recruited children who were followed up into adolescence, whereas APMS only assessed adults at both time points; (iii) the ALSPAC cohort study did not divide self-harm into inception and recurrence as seen in the APMS cohort. In their study of 185 participants, Evans and colleagues found that individuals with a history of repeat self-harm had significantly higher scores for self-reported impulsiveness than those presenting with self-harm for the first time. However, when examined in closer detail, those with first time self-harm had higher impulsivity scores than expected when compared with normative data after correcting for age and sex. This indicates the

complexity and difficulty when trying to tease out the relationship between impulsivity and longitudinal self-harm.

There is also a certain amount of contrast between our results and Peters and colleagues' cohort analysis using the same APMS dataset. Their analysis demonstrated that any significant relationship between impulsivity and future suicidal thoughts became non-significant when MI was included in the logistic regression model (Peters, Balbuena, Marwaha, et al., 2015). In our results, MI did not fully explain the significant relationship between impulsivity and future NSSH. Furthermore, we did not find any significant relationship between impulsivity and future SSH. This difference may relate to Peters and colleagues use of the suicidal thoughts variable in the household survey, rather than actual self-harm as in our analysis; potentially the relationship between impulsivity and MI may be different when examining suicidal thoughts compared to self-harm episodes. There is also a possibility that our findings in terms of SSH episodes in particular may have been underpowered to find any significant relationship that may exist with impulsivity due to the small numbers involved at follow-up. Peters and colleagues have also undertaken further work using the longitudinal element of the 2000 APMS where they examined impulsivity and MI at baseline and then NSSH at follow up after 18 months (Peters et al., 2016). In our paper, we have extended Peters and colleagues initial work to examine impulsivity and MI at baseline, and then SSH and NSSH at baseline and follow up. In

summary, Peters and colleagues have determined whether MI and impulsivity can be potential predictors of future NSSH, whereas we have more comprehensively studied all types of self-harm (NSSH and SSH), and repeat self-harm (maintenance of self-harm at baseline and follow-up). From our results, we agree with Peters and colleagues that onset of future NSSH at follow-up was predicted by impulsivity at baseline (Peters et al., 2016). However, our paper can place this finding in the wider context: impulsivity does not appear to predict future SSH, or any repetition of either NSSH or SSH. We do agree that the total numbers are small, and thus negative results in particular may be affected by inadequate power. However, although this positive finding from Peters and colleagues is important to note, when taken in context of multiple similar negative findings regarding future and repeat self-harm, the complexity of the data becomes clear and any immediate clinical relevance becomes less clear. We suggest that this topic requires further examination with datasets including greater total numbers for assurance in terms of any positive or negative findings.

Our approach of examining the potential predictive power of constructs, rather than diagnoses, in terms of future self-harm reflects the Research Domain Criteria (RDoC) project of the National Institute of Mental Health (NIMH) (Insel et al., 2010). The NIMH advocates researchers study constructs rather than discrete diagnoses and this current analysis is consistent with those recommendations. Although objectively-measured data

is usually preferable to self-report, the situation is more complicated for self-harm. For example there is some evidence that impulsivity may decrease the lethality of subsequent episodes of self-harm (Baca-Garcia et al., 2001), thereby enabling some episodes of repeat self-harm to be unrecorded and missed if repetition is only measured objectively. Therefore, using self-report self-harm in the APMS survey is likely to be more comprehensive than using hospital records alone. It has also been questioned whether using self-assessment measures of impulsivity may be unreliable due to recall bias, as participants are required to have insight into their own personality and to remember past thoughts, feelings and behaviours in an unbiased manner (Gorlyn, 2005). It also could be argued that a single self-assessment question may be insufficient to cover all aspects of a multifaceted concept such as impulsivity. However, single-item scales are practical in large population surveys where multiple concepts need to be assessed as this prevents participant fatigue (which might lead to a higher error rate and drop out rate) (Konrath, Meier, & Bushman, 2014). There are several examples of validated single-item scales in use in psychology (Davey, Barratt, Butow, & Deeks, 2007; Konrath et al., 2014; Robins, Hendin, & Trzesniewski, 2001). Furthermore, our validation analysis ensured that the APMS assessment of impulsivity and self-harm appeared valid in the context of previous research using other measures of these constructs. Finally, we are unaware of any other epidemiological big dataset analysis that examines longitudinal self-harm in the context of impulsivity, MI and childhood sexual abuse.

The major finding that new onset of NSSH was predicted by impulsivity at baseline was highly significant. However, the confidence intervals were broad indicating poor precision due to the small numbers involved. This also means that potentially negative results need to be considered with caution as these could be falsely negative due to a lack of power. As our data spanned a follow-up period of 18 months, it is highly likely that the individuals involved may have had mental health professional or other agency input over this period of time if they had thoughts of, or had undertaken, self-harm. Some of this may have been recorded in the APMS survey, but a comprehensive record is unlikely due to the wide variety of biopsychosocial interventions on offer and the limited number of questions posed in the survey. Therefore, we were unable to input this data into our results. It is also important to note that there were missing data in the dataset particularly relating to SSH: in the follow up analysis there were 1823 values missing at T1 and 2197 missing at T2 relating to SSH. However, much fewer data were missing from NSSH data: in the follow up analysis there were 2 values missing at T1 and 0 values missing at T2. These missing values are errors in the APMS dataset. The reasons for the missing data are unclear, and we therefore cannot exclude potential non-responder bias in this regard. It is possible that these missing values may have impacted on the non-significant findings in terms of SSH, essentially reducing the power of the SSH data.

Mental health professionals will likely benefit from a more individualised approach to risk assessment for self-harm; that is, additional personalised factors to complement existing risk assessments based on predominately demographic and clinical factors. This analysis indicates that presence of impulsivity may predispose individuals to be at a higher risk of first-ever self-harm in times of crisis and psychological stress than those who are not impulsive. Our results also indicate that this may be more likely to be NSSH. However, it should be borne in mind that the future risk of suicide is similar regardless of the intent of an individual self-harm episode.

5. Conclusion

Impulsivity appeared to predict emergence of new non-suicidal self-harm at 18 month follow-up, even after adjustment for mood instability and other sociodemographic and clinical confounders. Impulsivity did not significantly predict repetition of non-suicidal self-harm, or new inception or repetition of suicidal self-harm. However, impulsivity may be more important in terms of suicidal self-harm in those individuals who have a personal history of childhood sexual abuse.

This personalised information may help to guide clinicians in terms of risk assessment and future management. Nonetheless, it should be borne in mind that past intent may not correlate with future suicide, and precision of significant outcomes and power in terms of non-significant outcomes may have been affected by the small numbers of participants in this large survey who repeated self-harm. Furthermore, we were not able to capture or factor in potential interventions that may have occurred to participants with self-harm behaviour between baseline and follow-up.

Data access

Full details of the survey and methods are given in the comprehensive APMS survey report (Singleton et al., 2001).

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Declaration of conflicting interests

The authors declare that that there is no conflict of interest.

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